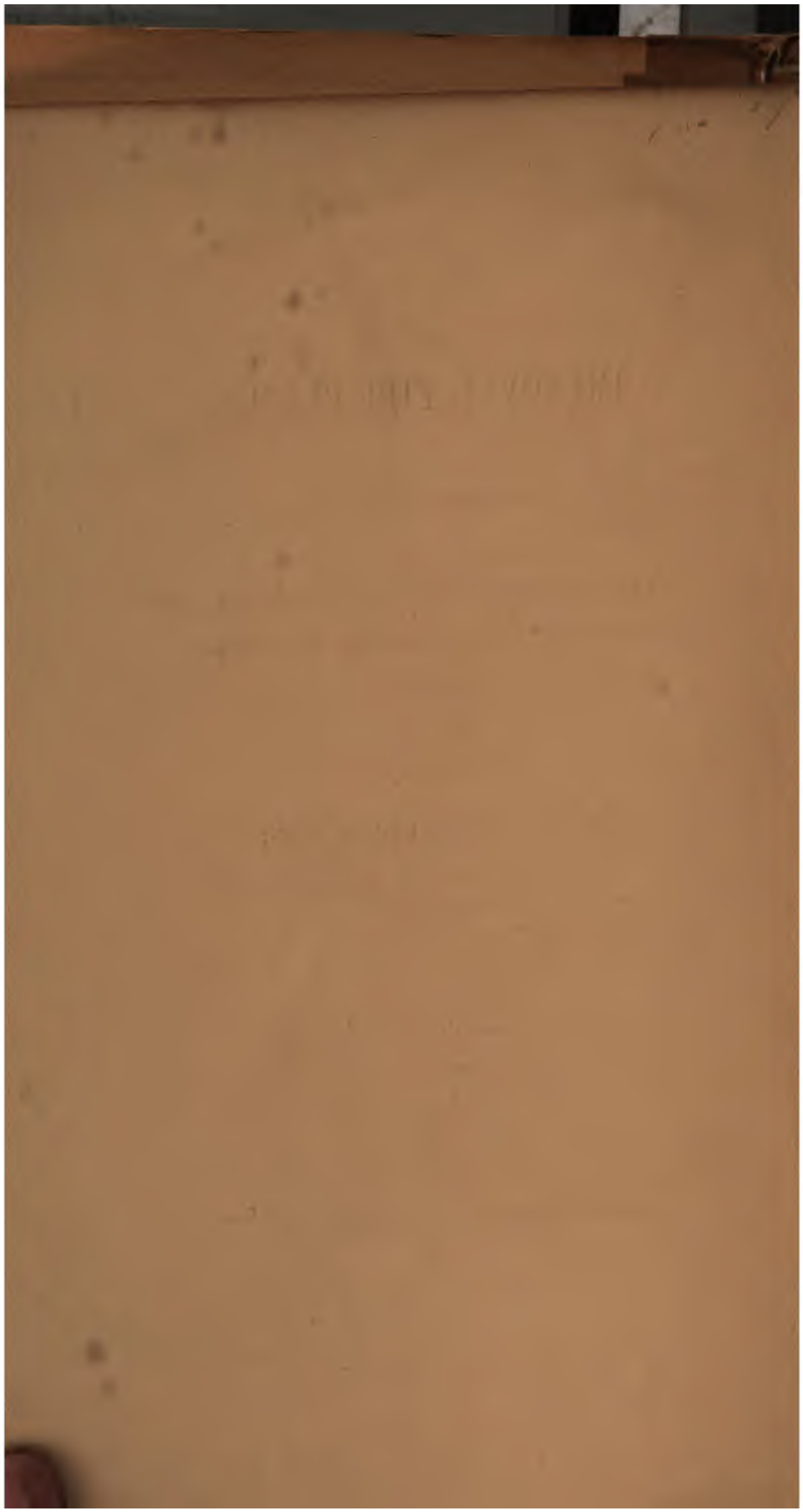
18641 d.26 Edwards & son, messrs.: Improved fire-places: a short account ... submitted by messrs. Edwards & son 1874



IMPROVED FIRE-PLACES:

A SHORT ACCOUNT OF

CERTAIN SUGGESTIONS FOR ECONOMISING FUEL AND MORE EFFECTUALLY WARMING APARTMENTS.

SUBMITTED BY

MESSRS. EDWARDS & SON,

IN REPLY TO THE APPEAL OF THE COUNCIL OF THE SOCIETY OF ARTS.

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PREFACE.

A PORTION only of the following schemes have been laid before the Council of the Society of Arts in reply to their appeal. The others were not sufficiently matured, or had not passed entirely through the process of manufacture on the final day which was fixed for the receiving of new propositions. Though some of these propositions may thus be placed *hors de concours*, but little harm can result either to their introducers or to the public, for the simple reason that if they possess any real merit, they will not fail to promote the end intended.

In a future issue of this pamphlet, we shall hope to describe such further schemes as we may be able to mature for economising fuel for cooking, and for further adding to the economy and convenience of dwelling-houses.

49, *Great Marlborough Street, London.*
April 15*th*, 1874.

IMPROVED FIRE-PLACES.

On a careful consideration of the various improvements which have at one time and another been suggested, whether by writers or by manufacturers, it appears that all improved fire-places should in the future be constructed with a careful regard to the following points:—

Firstly. That provision should be made for the admission of fresh air from an external source to the neighbourhood of the fire-place.

Secondly. That the fire should burn for a much longer period than we are accustomed to without attention.

Thirdly. That smoke should be in a great measure prevented, or as it is called, consumed.

We are satisfied from long experience that the first point is one of supreme importance, because as long as large quantities of air pass away by open chimneys, and a fresh supply is not given in sufficient quantity and in a suitable mode, we are exposed to the follcwing evils :—

1. Constant currents from doors and windows.

2 A tendency to closeness, particularly in small rooms.

3. Smoke sometimes not carried away effectually.

4. Down currents in chimneys, whether in actual use or not, bringing with them minute particles of soot and dust, which are deposited on the furniture.

Various methods of giving a fresh air supply to existing fire-places are shown in the accompanying engravings and will now be shortly described.

Fig. 1 shows a block of terra-cotta or fire-brick, supported by four square blocks measuring about an inch square. Fig. 2. shows a similar block, with a front surface ornamented. Fig. 3 shews a number of the plain blocks put together so as to cover or to form the hearth

of a fire-place, and also a front row of the blocks with ornamental front surface. If these blocks be laid within a fire-place, and a channel be made from an external wall to the hollow space below the hearth, the fresh air will flow into the room below the front ornamental surface of Fig. 3.

Fig. 4, shows a hearth on the same principle, but made in one entire piece, either of stone or fire-brick. The air enters the room at the slits *a a*.

Fig. 5, shows a similar hearth with openings *b b*, through which the fresh air may rise to become warmed by contact with the back surface of the grate and be admitted to the room by the means hereafter described.

Fig. 6, shows a raised hearth of tile constructed after the same fashion as Fig. 3.

It should be remarked, that the fresh air flowing in under a raised brick or tile hearth, will prevent the accumulation of dust under the hearth.

Fig. 7, shows the entire interior of a fire-place moulded in fire-clay, with air channels at each side, and at the back. When fixed within a fire-place, a little brick-work only is required to fill any space which may exist at each side as shown in Fig. 19 and 20.

Fig. 8, shows a similar arrangement either in fire-stone, or fire-brick, but formed of four pieces instead of ten.

Fig. 9, shows a plan of Fig. 7, with the air channels provided to the fire bricks.

Fig. 10, is a section showing the air channels at the back and sides. This section is taken horizontally at the centre of the grate.

Fig. 11, shows an iron front with fire bars attached to it. The iron supports *a a a*, are built into the brick work at each side of the fire-brick interior. The iron front is screwed on to these iron supports, and may be attached or detached at pleasure. The openings *b b*, are

for the admission of the fresh air to the room, which has become warmed by contact with the back parts of the grate. The spaces *c c*, facing the brick work may be covered with tiles or other material.

Fig. 12, is a vertical section showing the form of the grate and of the air channel behind it.

It will be observed that the object of this arrangement is to provide that whether air from an external source be admitted at the fire-place, at the hearth, at either side, or at the back, it shall be able to pass behind the heated exterior surface of the grate before its admission to the room.

We need further remark, that the fire bars are extremely light, made of wrought iron and more in number than usual, allowing of a deep fire being used to burn from the top downwards. The chamber to receive the coals and the bottom are formed entirely of fire brick, the latter not being entirely solid, but having a few holes in it tapering from the top downwards, which allow fine ashes to fall below, and a small supply of air to enter at the bottom of the fire.

At *d* a handle is provided to control the draught of the chimney.

Figs. 13 to 18 show another mode of constructing a fire place of fire brick, with air channels for the admission of fresh warm air.

When placed together, these figures are in the position shown in vertical sections 19 and 20. This arrangement is somewhat less cumbersome than the arrangement shown in Figs. 7 and 8, and of less cost. The front surface of brick is exposed, and may be ornamented. No iron front is required, but instead, a loose set of bars, as Figs. 21 or 22, supported by strong iron brackets, may be placed to form the front of the grate, as shown in Fig. 23. An iron plate *d* may be fixed across the upper part of the fire-place, to which a

handle and a register may be attached. An ornamental moulding of terra-cotta may be used outside the grate, instead of an ordinary chimney piece, as shown in Fig. 23. The mantel slab may be of marble, stone or polished wood.

Fig. 24 shows an improved form of ventilator which can be attached to the upper part of the fire-place, for the escape of air from the room. It is opened or closed by means of a handle in front. A section is given in Fig. 25.

Fig. 26 shows a handsome chimney piece in terra-cotta, with spaces along the top and at each side to be filled with decorated tiles. The ventilating grate with regulator, apertures for admission of fresh air, fire bars as described, and ventilator for escape of air, are shown within it.

By these various methods, an improved and economical system of warming is obtained, through the use of fire-brick, the admission of fresh warm air, the lightness of the bars and the almost close bottom, ventilation is obtained by the provisions for admitting fresh air, and of allowing air in the room to pass away; a fire of greater vitality than usual is obtained by the almost close bottom and the greater depth of fire; and the prevention of smoke is obtained in a large measure by the provision which allows of a fire to be lighted at the top, to continue burning for many hours.

Figs. 27 to 30 show a carefully prepared and complete arrangement for effecting the same objects. The hearth is of tile, and raised upon a frame work of iron, beneath which the fresh air passes on its way to the room. A hollow fender curb is provided in front of the tile hearth and hollow pedestals, one at each end, upon which figures can be placed as shown. The figures are made to turn on an axis, and in doing so to open or close an aperture at the back of each pedestal. It is at these apertures that the air is admitted to the fire-place

which has passed under the tile hearth to the fender curb and pedestals. The interior of the grate is of fire-brick, and is gently arched over at each side and behind, so as to contract the opening to the chimney and present a heated surface which will radiate heat on the ground in front of the fire-place. This brick interior has ribs provided behind, as shown in Figs. 28 and 29, which assist in the formation of air chambers at the back and sides of the grate, and check the passage of fresh air to the room until it has become sufficiently warmed. The air is finally admitted at the top of the grate at A, Fig. 27, where a slip of iron is shown of the whole width of the grate, which may be moved backwards and forwards on axes, by a slight touch with the finger. This arrangement may be understood by the section Fig. 29, where the iron slip is shown at the top of the grate, as pushed backwards, so as to allow the air to enter. The same section shows an iron frame work enclosing a valve or register, and a handle in front by which it can be worked. The bottom bars are made very thin and put close together. The front bars are light and four in number. The splayed sides of the grate, Fig. 27, shown in white, and the horizontal flat surface above may be of decorated tiles, of polished steel or other material. We believe that this arrangement, which combines the admission of fresh air to the fire-place, with warm air to the room, is a very satisfactory one, and is suitable both for public buildings and family use. This scheme has been submitted to the Council of the Society of Arts.

Figs. 31 and 32 represent a working man's oven and copper with steamer for cooking, which is exceedingly economical and appears to be adapted to the requirements of a great many among the labouring classes.

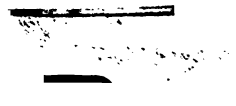


Fig 1.

Plain Block of Fig 3.

Fig 2.

Front Block of Fig 3.

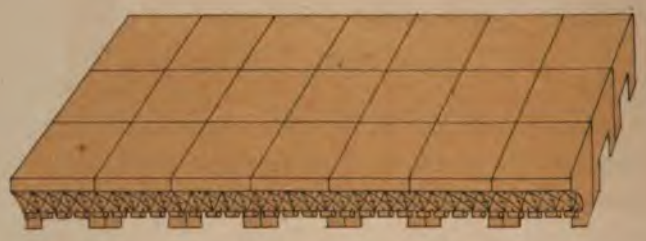


Fig 3. Terra Cotta or fire-brick Hearth for admission of fresh air.

Fig 4. Fire-brick or stone Hearth for admission of fresh air.

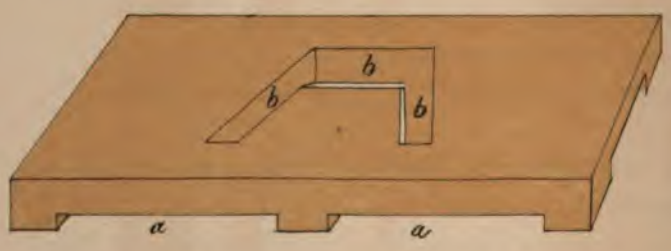
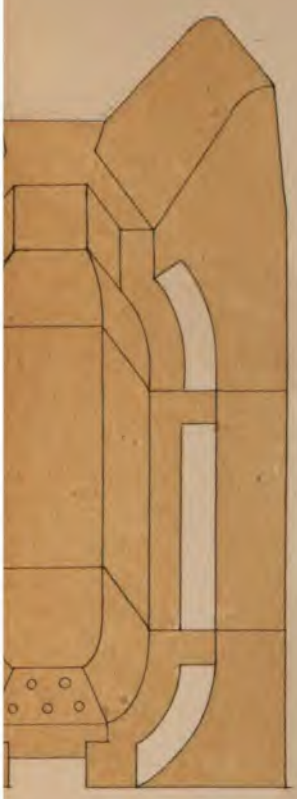


Fig 5. The same Hearth, with openings for ascent of fresh air to the back of the Grate.

Fig 6. Raised Tile Hearth, for admission of fresh air.



terior of Grate in ten parts.

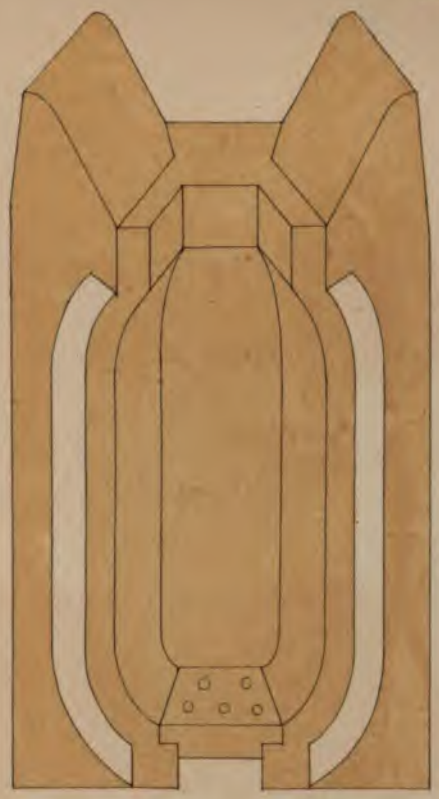
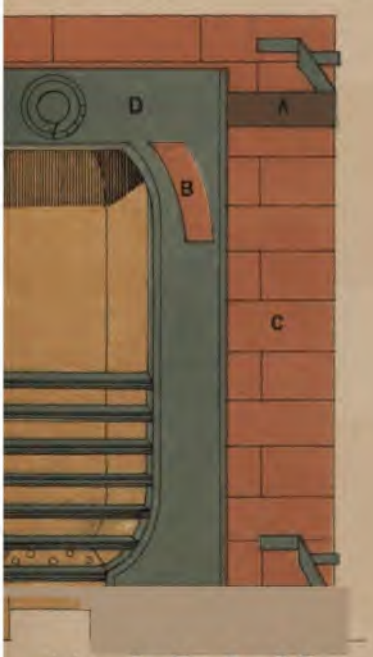


Fig 8. Fire-stone interior of Grate in four parts.

Plan of Fig 7.

Fig 10. Section across the Centre of Fig 7.



and bars for Figs 7 and 8
fasten in brickwork.

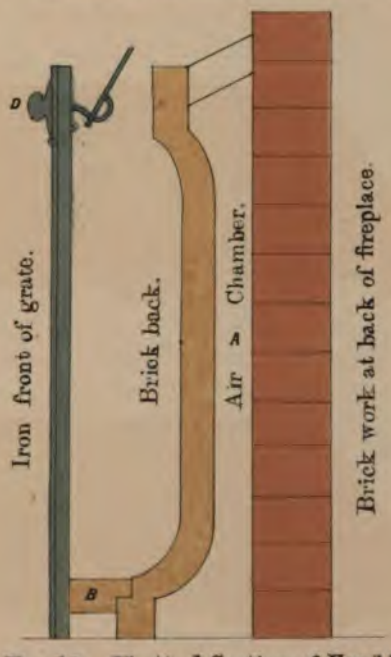


Fig 12. Vertical Section of Fig 11.

A. Fresh air chamber.
B. Brick bottom.
D. Regulator to chimney

Figs 13 to 20.

Fig 13.

Fig 15.

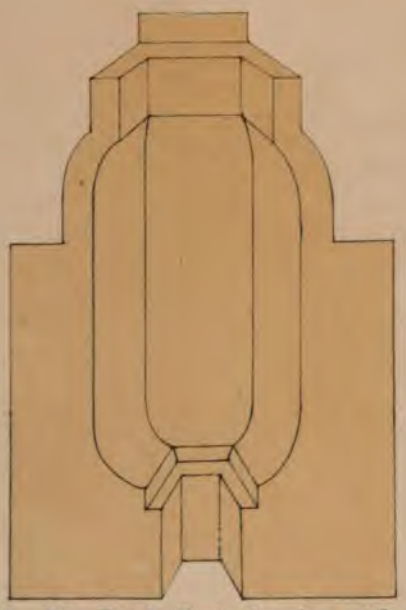
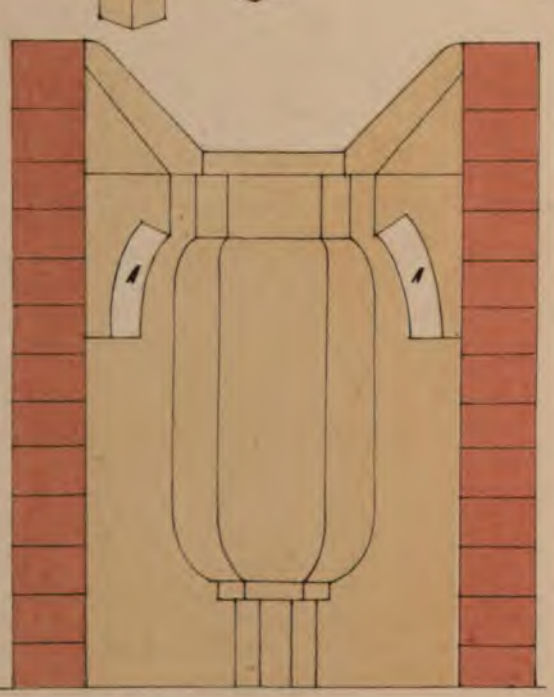


Fig 16.

Fig 14. Fire Brick Grate forming with Figs 13, 15, 16, 17 and 18, a Ventilating Grate in six parts.

Fig 18.



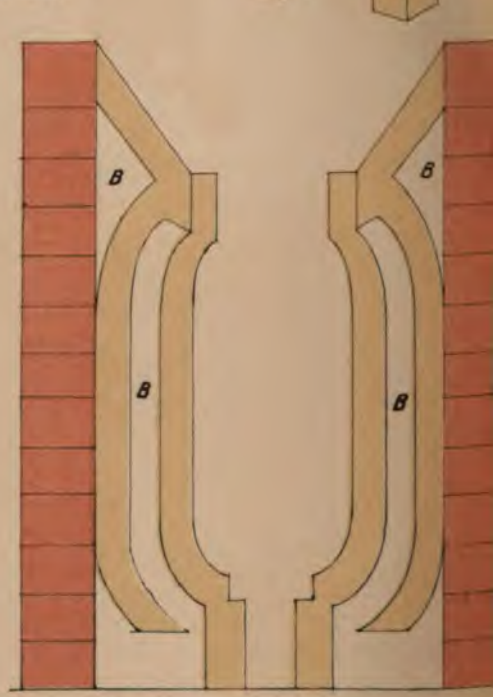


Fig 19. Showing the Grate Figs 13 to 18 as fixed in brickwork; a. a. openings for admission of fresh air to the room.

Fig 20. Section showing the spaces b, b, b passage of fresh air to be warmed, by co with the grate.

1. Fire Bars to be used with Fig 19.

22. Deeper Fire Bars to be used with Fig 19

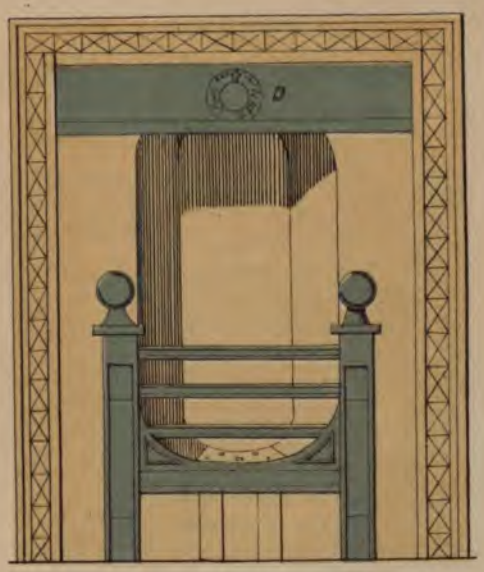


Fig 23. Terra Cotta Chimney Piece, with fire brick interior, as Fig 19, and Bars as Fig 21.

Fig 24. Ventilator for passage of warm air as shown in Fig 26.

Fig 25. Section of Ventilator when open.

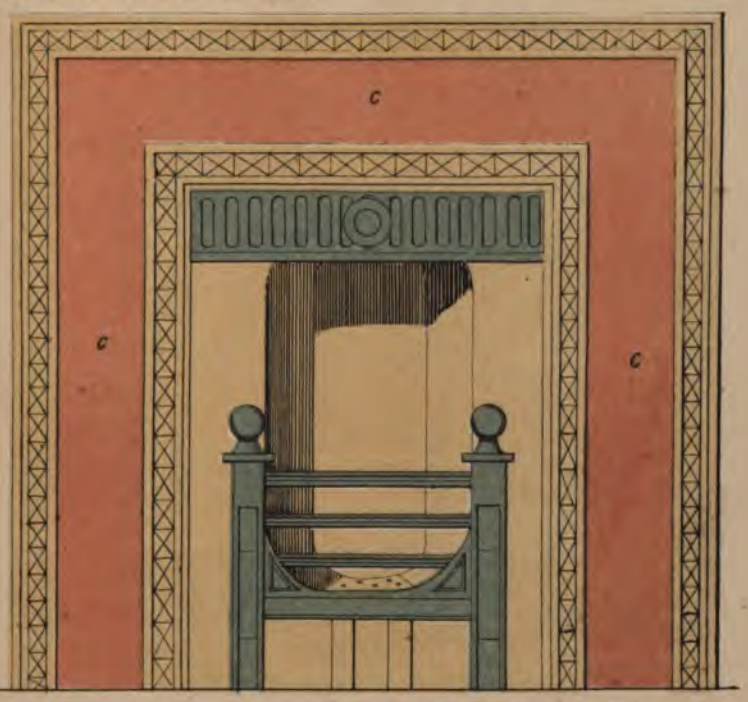


Fig 26. Terra Cotta and Tile Chimney Piece, with fire-brick interior as Fig 19, Bars as Fig 21 or 22, and Ventilator as Fig 24, c, c, c, glazed ornamental Tiles.

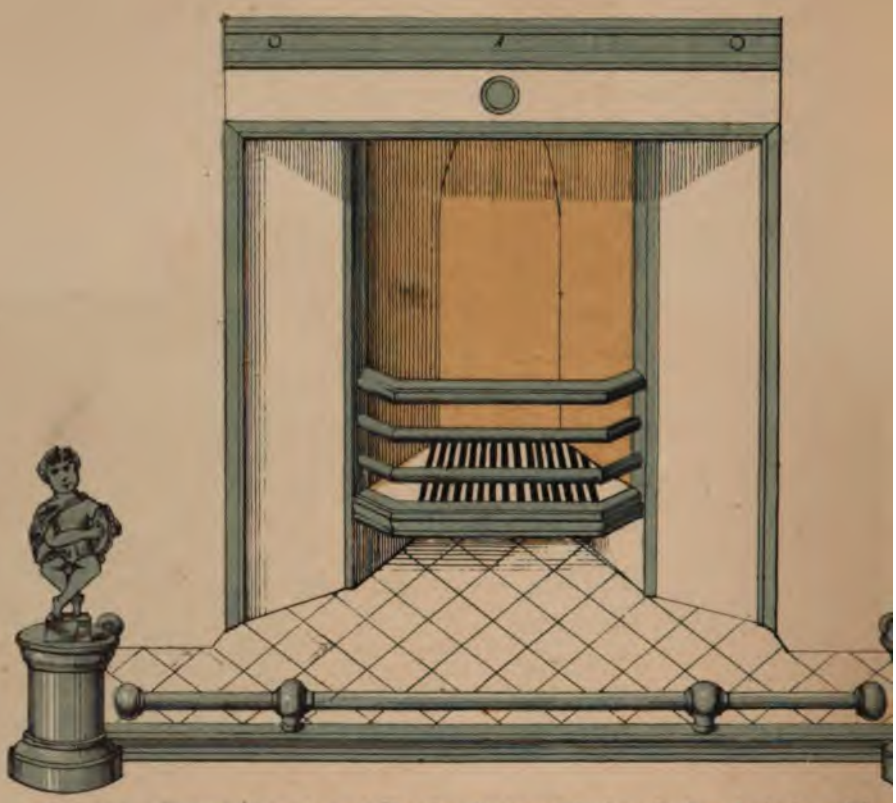


FIG. 27. Raised Hearth with Fender Curb and Pedestals for admission of fre

Grate with Horizontal Sliding Plate (a.) for admission of fresh air.

Fig. 28.—Section of Fig. 27, (b. b. b.) Spaces at back of Grate for warming the fresh air.

Fig. 30.—Section of Pedestal showing apertures for admission of fresh air.

Fig. 29.—Vertical section of Fig. 27

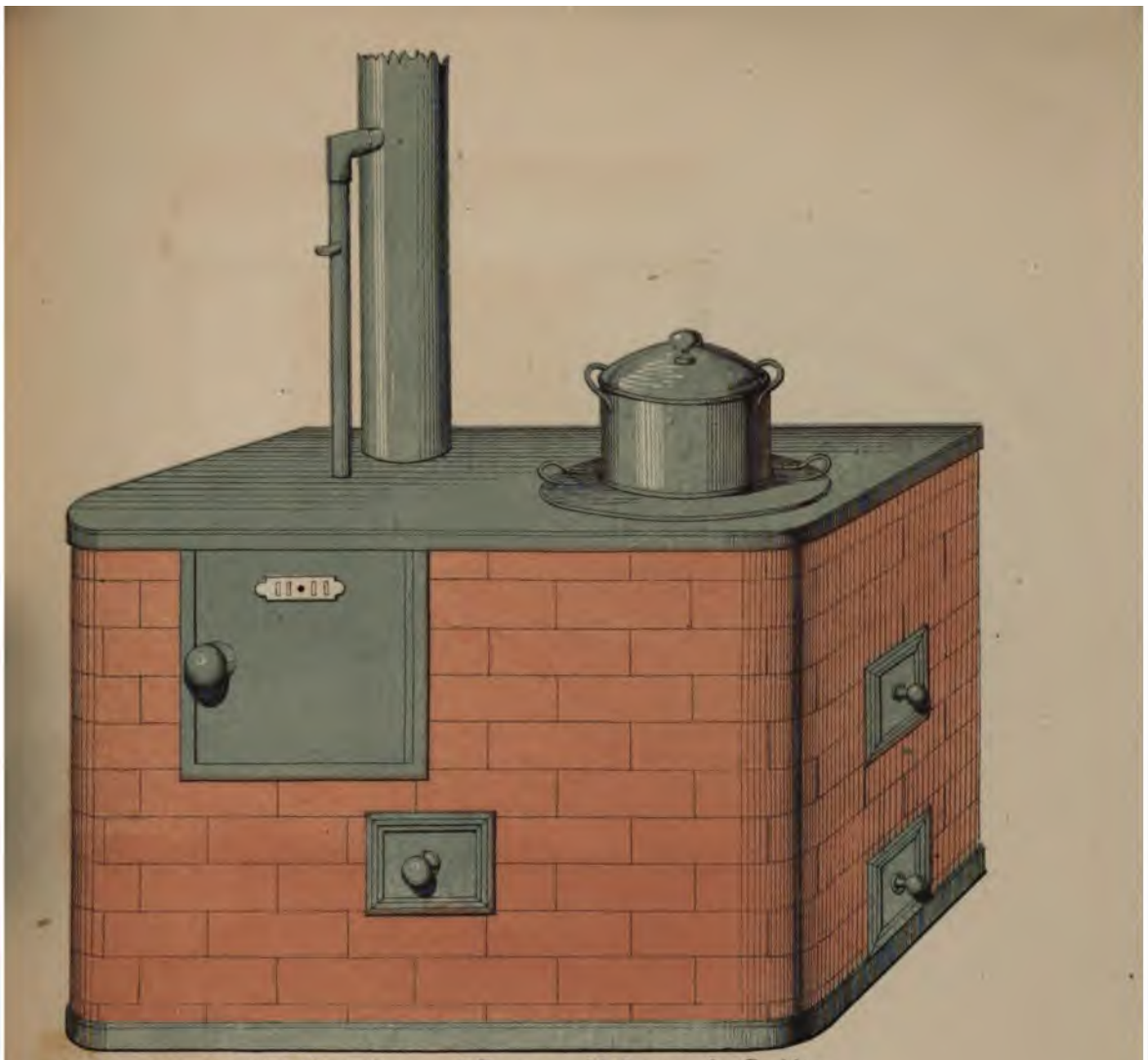


Fig. 31.—Working Man's Oven and Copper, with Steamer for Cooking.

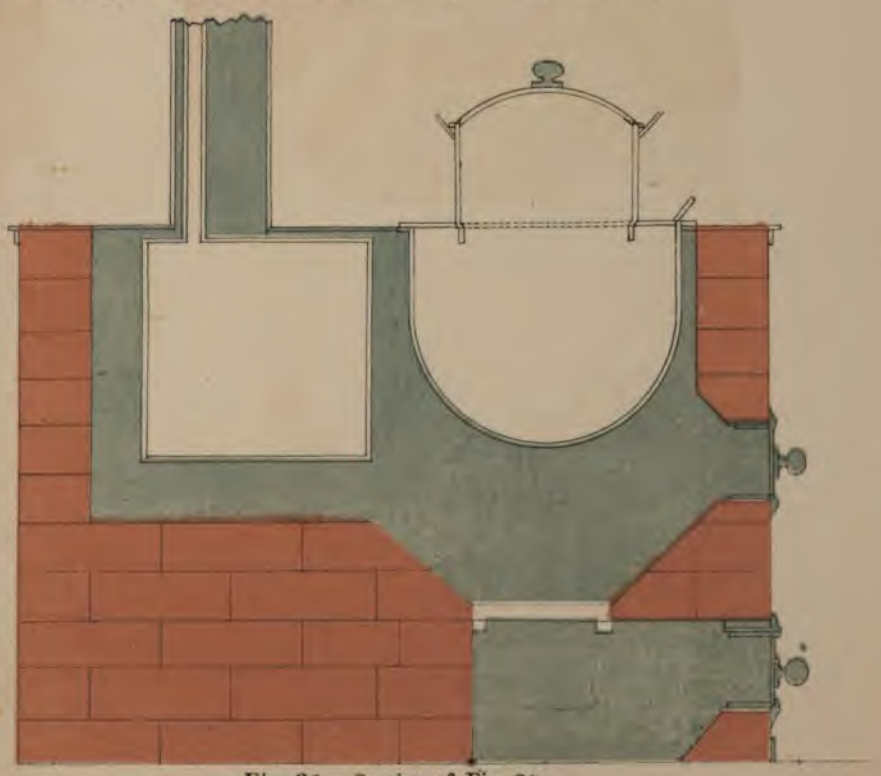


Fig. 32.—Section of Fig. 30.